Math Ideas & Programs for Students with Learning Disabilities

Not all solutions have to be complicated to be effective. This is true for just about everything in life, including math for students with Learning Disabilities. Hopefully, these ideas will enable them to comfortably know what tools may assist them as they move towards graduation and go on to their careers.

Not all ideas will become successful tools for every student. They are ideas worth considering for all students feeling harassed by math and related courses. It would be good to share these with your tutoring and learning services departments to help catch those students with undiagnosed Learning Disabilities. Even students who do not have a Learning Disability may have learned to be discouraged about math because they weren't aware of tools that could assist them.

Software programs can be very valuable tools. Some other effective tools are listed below:

1. Erasable colored pencils & Erasable highlighters.
   One color can be used to circle +'s, and another can be used to circle –'s. They can be used to underline the changes from step to step when solving an equation for *x*.

2. Calculator with paper tape or a graphing screen
   A printing calculator may make it easier for the student to check their work. A scientific graphing calculator may not be required for the classes the student is taking, but could be a simple, inclusive way to see their work.

3. Talking calculators
   Does the student do better with auditory feedback to augment visual perception? There are handheld calculators and software programs.
   Basic talking calculator – www.independentliving.com
   Orion Talking TI-36X Scientific Calculator
   Software calculator program – Scientific Calculator

4. Mechanical Pencils and Erasers
   Often, people can write more neatly with a constantly sharp pencil, such as a mechanical pencil. Erasers harden when exposed to air. Mechanical-style erasers, because of their holder, have the benefits of doing neat and clean erasing. This means the student and the teacher can see the student's work more clearly.

5. Engineering Graphing Paper
   Generally green, this paper has well-defined squares and sections. This may give the student the guides they need to keep their numbers and columns neat. It may also assist teachers and tutors reviewing the work.

6. Study groups
   Does talking through the mathematical processes help the student to learn? Are there guidelines in place to ensure that the Study Group's main objective is to study? This may also help the student get in some extra practice with both doing the work and hearing the thought behind it.

7. Tutoring
   Make sure a student knows where and from whom to seek assistance before they're in over their heads. They may need to be reminded about this, and also have an advisor who is aware of their grades. To make sure this help is available without delay, put a request in before the semester starts. If it turns out the expected student doesn't need the help, there are sure to be other students who do.

8. Textbooks in Electronic Format or MP3 Files
   Textbooks in alternative formats are just as important for math related classes as they are for other classes. Textbooks in digital format can be obtained from Learning Ally (www.learningally.org) and Bookshare (www.bookshare.org). With proper documentation, k-12 and college students should qualify for Bookshare's free membership program.

9. Lab Reports
   Many math-related courses, such as Physics, include a lab and require a lab report. While the tools mentioned here can support the student's math skills, they will need their supports for taking notes in lab, just as in more typical "writing" classes. One example would be the Livescribe Echo SmartPen (www.livescribe.com) for taking notes in the moment and Inspiration software for visually organizing notes and planning a lab report format.

10. Encouragement
    Many of these students may need encouragement to consider themselves able to learn math and use it in the "real world."

SOFTWARE FOR MATH

Software for access to math are not yet at same level as reading and writing programs such as TextHelp or WYNN. There are still effective software tools available, however.

1. Standard Text-to-Speech programs
   These programs are often used for assisting writing skills. Examples include TextAloud, Kurzweil 3000, WYNN, and TextHelp Read & Write Gold. Read Please, a freeware program, allows a student to experiment with this type of software before investing money in a program with more features. It's important to remember that these programs are not designed to read or write more complicated math equations using "math speak." Even so, students' work can often improve because they understand the questions better.

   Word documents written in MathDaisy, from Design Science (www.dessci.com/en/products/mathdaisy), can be read audibly by the free MathPlayer software. Kurzweil 3000 is the only scanning/reading software that will read "mathese" correctly (www.dessci.com/en/solutions/access/atsupport.htm).

2. Calculator Tutor
   This program allows a user to practice how to use the different functions of a basic calculator. It includes practice, quiz questions, and reports to track a student's progress. It is available from the Attainment Company (www.attainmentcompany.com).

3. Inspiration
   This is a brainstorming, story-webbing program that is generally presented as a writing tool. However, it can also be used as a way to diagram the steps to complete a math problem, such as finding the Least Common Denominator. (www.inspiration.com)

4. InspireData
   This program gives visual ways to explore and understand data. The student can actively participate in creating Venn diagrams and the many different ways to plot information. They can also watch as a graph is created from information they put into a data base (www.inspiration.com).

5. ModuMath

This is an interactive video course developed through the Wisconsin Technical College. It is designed to be a review guide for students preparing for classes or as a supplement to regular classes. The concepts are explained through video clips, using real life examples to explain abstract concepts, and the student has the opportunity to practice what they've seen. If they make a mistake, a video clip reviews how to complete that problem. It is a great way for a person who learns best by auditory process, and real-life examples, to review concepts independently. *From Wisconsin Technical College System Foundation, Inc* - www.modumath.org

6. Math Keyboarding Programs

These are programs that enable a person to write and solve math equations using the standard mathematical symbols. The difference is that they use a keyboard instead of a pencil. Eliminating the difficulties physical writing creates for them may enable many students with Learning Disabilities to concentrate on the subject matter.

MathType – www.dessci.com/en/products/mathtype/default.htm

Scientific Notebook – www.mackichan.com

7. Voiced Mathematics Product

There are several programs available through Metroplex Voice Computing. One is MathTalk /Scientific Notebook (www.mathtalk.com), which can be used with Dragon Naturally Speaking. This enables a person to do all of their math writing using their voice. For a student who can "do math" and talk through the process, this may be an excellent tool. The program's text-to-speech feature will read the math back correctly.